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ABSTRACT

An apparatus and method for increasing integrated circuit density comprising an upper die and a lower die, the latter preferably a flip-chip, which are connected to a conductor-carrying substrate or a leadframe. The upper die is attached back-to-back with the lower die with a layer of adhesive applied over the back side of the lower die. Bond wires or TAB leads are attached between bond pads on the upper die and corresponding conductive trace or lead ends on the substrate. The upper die may be smaller than the lower die such that a small discrete component such as a resistor, capacitor, or the like can be attached to the adhesive not covered by the upper die. Bond wires can be attached between the upper die and the component, as well as between the component and the substrate. One or more additional die may be stacked on the upper die and electrically connected to the substrate. Furthermore, multiple lower die can be arranged on the substrate to support upper die bridged between the lower die.

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